



## Four new species of *Saetherocladius* Andersen *et* Mendes from Mata Atlântica, Brazil (Diptera: Chironomidae: Orthocladiinae)

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### Abstract

The monotypic genus *Saetherocladius* Andersen *et* Mendes, 2007 was erected based on *S. hirtus* Andersen *et* Mendes, 2007 from southern Brazil. The present paper adds four new species, *S. fusticulus*, *S. fusus*, *S. triangulatus* and *S. urubiciensis*, all from the Atlantic forest in southern and southeastern Brazil. The new species are described and figured as males and the male of *S. hirtus* is redescribed based on additional material. A key to the males of *Saetherocladius* is given.

**Key words:** Diptera, Chironomidae, Orthocladiinae, *Saetherocladius*, new species, key, Neotropical

### Introduction

The genus *Saetherocladius* was described by Andersen and Mendes (2007) based on a single male of *S. hirtus* Mendes *et* Andersen, 2007. The genus is distinct by having bare eyes and wing membrane, decumbent acrostichals starting close to antepnotum, slightly lanceolate dorsocentrals and prealars, short, narrow anal point and superior volsella with strong subtriangular projections with single, curved subapical seta. Its closest relative most probably is *Bryophaenocladus* Thienemann, from which it can be separated on the shape of the inferior volsella, the slightly lanceolate setae on the thorax and the strong crista dorsalis. Lanceolate setae on thorax are also found in the genus *Limnophyes* Eaton.

After the genus was described, more material from South and Southeast Brazil has been brought to our attention. In the present article we describe and figure the males of four additional species, and redescribe the male of *S. hirtus* based on additional material. The known range of *S. hirtus* now includes São Paulo and Rio de Janeiro States. A key to the males of *Saetherocladius* is given.

### Material and methods

The specimens were mounted on slides in Canada balsam following the procedure outlined by Sæther (1969). The general terminology follows Sæther (1980). The measurements are given as ranges followed by the mean when 4 or more specimens were measured, followed by the number measured (n) in parentheses.

The holotypes and some paratypes of the new species are deposited in the Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil (MZUSP); remaining paratypes are housed in the Department of Natural History, Bergen Museum, University of Bergen, Norway (ZMBN).

## *Saetherocladius* Andersen *et* Mendes

*Saetherocladius* Andersen *et* Mendes, 2007: 48.

**Type species:** *Saetherocladius hirtus* Andersen *et* Mendes, 2007, by original designation.

Description as in Andersen and Mendes (2007) except for: AR 0.3–0.9; third palpomere with 3–7 spatulate sensilla clavata; costal extension absent or short (< 20  $\mu$ m long); squama bare or with a few setae; supraalar present, anal point tapering, parallel-sided or weakly spatulate and gonostylus with or without outer projection.

### *Saetherocladius hirtus* Andersen *et* Mendes

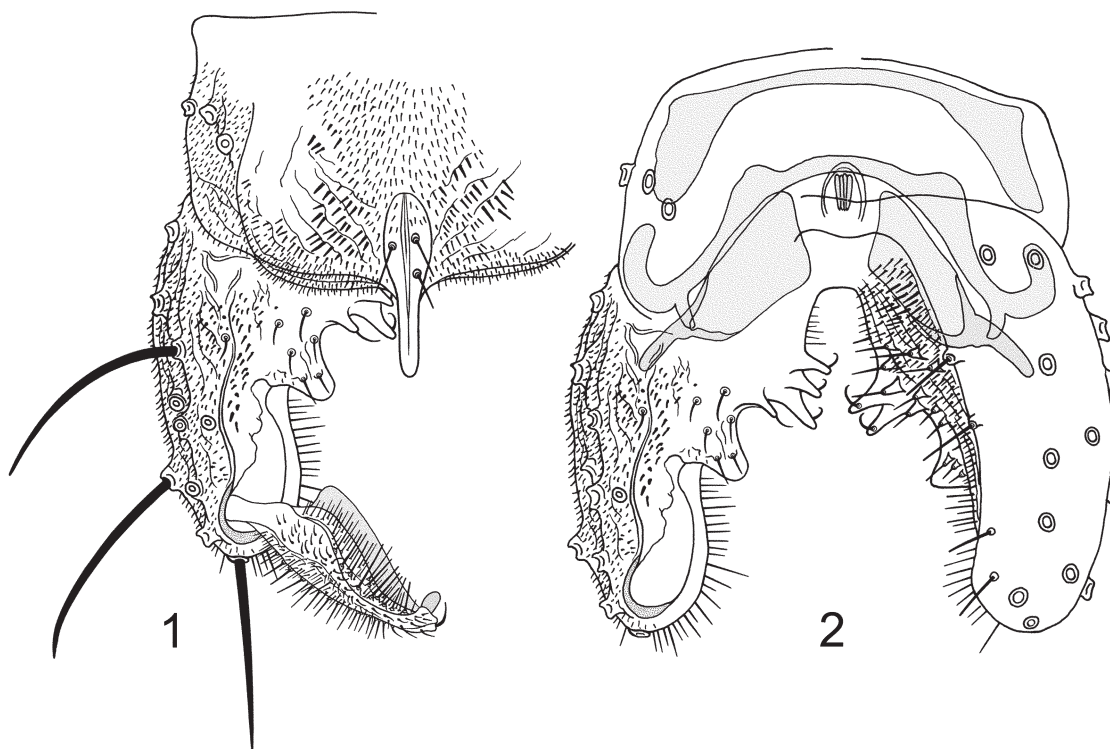
(Figs 1–2)

*Saetherocladius hirtus* Andersen *et* Mendes, 2007: 48

*Saetherocladius hirtus* Andersen *et* Mendes; Mendes *et al.* (2007: 1175).

**Material examined.** Holotype male as in Andersen and Mendes (2007). **Brazil:** São Paulo State, Parque Estadual Serra do Mar, Ubatuba, 23°21'43"S, 44°59'22"W, 21.i.2002, 3 males, Malaise trap (Bosque 7), N.W. Peixoto *et al.*; 1 male as previous except 24.i.2002, (Bosque 6); Rio de Janeiro State, Reserva Biológica Tinguá, Nova Iguaçu, 22°34'32"S, 43°26'07.6"W, 8–11.iii.2002, 1 male, Malaise trap (Bosque 3), S.T.P. Amarante *et al.*

**Diagnostic characters.** The species can be separated from the other species in the genus by the following combination of characters: AR 0.29–0.36; virga 8–11  $\mu$ m long; inferior and superior volsella well separated; inferior volsella rounded, without dorsal microtrichia and anal point parallel-sided.



**FIGURES 1–2.** *Saetherocladius hirtus* Andersen *et* Mendes, 2007, male. 1- anal point and tergite IX and dorsal aspect of left gonocoxite and gonostylus; 2—hypopygium with tergite IX and anal point removed, dorsal aspect to the left, ventral aspect to the right.

**Male** (n = 5–6, except when otherwise stated). Total length 1.11–1.32 (3) mm. Wing length 663–700, 690  $\mu$ m. Total length / wing length 1.59–1.88 (3). Wing length / length of profemur 2.29–2.37, 2.34.

**Coloration.** Dark brown.

**Head.** AR 0.29–0.36, 0.33. Ultimate flagellomere 94–112, 109  $\mu$ m long. Temporal setae 4–9, 7 including 0–5, 3 inner verticals; 2–4, 3 outer verticals and 1–2, 1 postorbital. Clypeus with 4–7, 5 setae. Tentorium 75–88, 82  $\mu$ m long; 14–18, 16  $\mu$ m wide at sieve pore. Stipes 66–77, 73  $\mu$ m long; 29 (1)  $\mu$ m wide. Palp segment lengths / widths (in  $\mu$ m): 14–18, 16 / 11–14, 13; 21–27, 24 / 13–16, 15; 43–60, 54 / 15–19, 17; 48–57, 52 / 12–16, 15; 82–100 (3) / 10–13 (3). Third palpomere with 4–7, 5 sensilla clavata subapically; longest 8–11, 10  $\mu$ m long.

**Thorax.** Anteprenotum with 2–5, 4 setae. Dorsocentrals 12–16, 14; acrostichals 11–24, 16, starting close to anteprenotum; prealars divided into 2–4, 3 posterior and 2–4, 3 anterior setae; supraalar 1. Scutellum with 4 setae.

**Wing.** VR 1.39–1.46, 1.43. Costal extension 8–20, 14  $\mu$ m long. Brachiolium with 1 seta; R with 1–3, 2 seta; other veins bare. Squama with 0–1, 0 seta.

**Legs.** Spur of fore tibia 29–39, 34  $\mu$ m long; spurs of mid tibia 13–18, 16  $\mu$ m and 9–12, 11  $\mu$ m long; spurs of hind tibia 31–34, 33  $\mu$ m and 9–12, 11  $\mu$ m long. Width at apex of fore tibia 18–23, 21  $\mu$ m; of mid tibia 18–23, 20  $\mu$ m; of hind tibia 27–29, 28  $\mu$ m. Comb with 12–16, 14 setae; longest 20–28, 26  $\mu$ m long; shortest 11–18, 16  $\mu$ m long. Lengths and proportions of legs as in Table 1.

**TABLE 1.** Lengths (in  $\mu$ m) and proportions of legs of *Saetherocladius hirtus* Andersen *et* Mendes, 2007, male (n = 3–4).

	fe	ti	ta <sub>1</sub>	ta <sub>2</sub>	ta <sub>3</sub>	ta <sub>4</sub>
p <sub>1</sub>	288–310, 300	324–367, 344	144–156, 148	72–88, 80	43–54, 49	25–34, 30
p <sub>2</sub>	284–310	277–302	115–119	58–61	36–41	22–25
p <sub>3</sub>	295–317	328–338	184–204	78–88	76–86	32
continued.						
	ta <sub>5</sub>	LR	BV	SV	BR	
p <sub>1</sub>	25–31, 28	0.41–0.46, 0.43	4.04–4.54, 4.25	4.12–4.58, 4.35	2.0–2.7, 2.4	
p <sub>2</sub>	22–25	0.39–0.42	4.78–4.95	4.87–5.17	2.2–2.4	
p <sub>3</sub>	27–29	0.56–0.60	3.64–3.83	3.22–3.45	2.8–3.1	

**Hypopygium** (Figs 1–2). Anal point 20–41, 32  $\mu$ m long; 7–12, 10  $\mu$ m wide at base; 4–7, 5  $\mu$ m wide at apex; with 2–4, 3 setae basally. Laterosternite IX with 3–4, 3 setae. Phallapodeme 45–50, 47  $\mu$ m long; transverse sternapodeme 34–50, 40  $\mu$ m long. Virga 8–11, 9  $\mu$ m long (in the original description the length of virga was given as 20  $\mu$ m; this length, however, refers to the length of the penis cavity and not the virga itself). Gonocoxite 90–98, 93  $\mu$ m long. Gonostylus 56–60, 59  $\mu$ m long, with large, triangular crista dorsalis; megaseta 7–9, 8  $\mu$ m long. HR 1.54–1.68, 1.59. HV 1.92–2.23 (3).

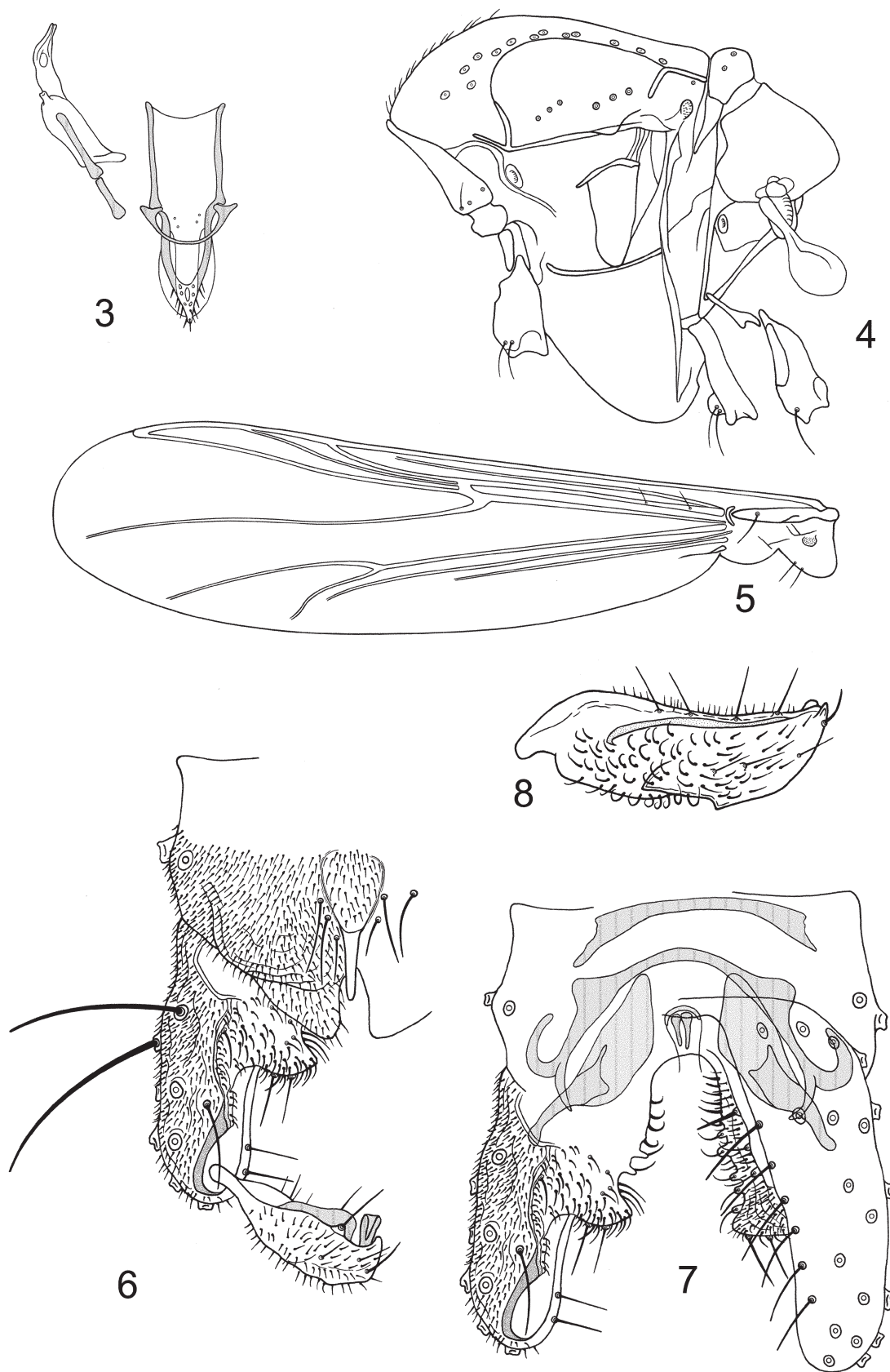
**Female and immatures.** Unknown.

**Distribution and ecology.** The species has been collected in Malaise traps close to low-order forest streams in areas with mainly primary Atlantic forest in Parque Estadual de Picinguaba and in Parque Estadual Serra do Mar in the coastal areas of São Paulo State. One specimen from Reserva Biológica Tinguá in Rio de Janeiro State extends its known range further north.

### *Saetherocladius fusticulus* sp. n.

(Figs 3–8)

**Type material.** Holotype male, slide mounted in Canada balsam. **Brazil:** São Paulo State, Parque Estadual Intervales, Ribeirão Grande, Barra Grande, 24°15'S, 48°10'W, 10–13.xii.2000, Malaise trap (Trilha 2), M.T. Tavares *et al.* (MZUSP). Paratype: 1 male, as holotype (ZMBN).



**FIGURES 3–8.** *Saetherocladius fusticulus* **sp. n.**, male. 3—tentorium, stipes and cibarial pump; 4—thorax; 5—wing; 6—anal point and tergite IX and dorsal aspect of left gonocoxite and gonostylus; 7—hypopygium with tergite IX and anal point removed, dorsal aspect to the left, ventral aspect to the right; 8—gonostylus with crista dorsalis projecting upwards.

**Diagnostic characters.** This species can be separated from the other species in the genus by the following combination of characters: AR 0.45; virga 6–9  $\mu\text{m}$  long; inferior volsella rounded, with dorsal microtrichia; gonostylus without outer projection and anal point tapering.

**Etymology.** From Latin *fustis*, club, bludgeon, referring to the shape of the gonostylus.

**Male** ( $n = 1-2$ ). Total length 1.16–1.49 mm. Wing length 709–903  $\mu\text{m}$ . Total length / wing length 1.64–1.65. Wing length / length of profemur 2.57–2.88.

**Coloration.** Thorax and head brown; legs, abdomen and antennae light brown.

**Head.** AR 0.45. Ultimate flagellomere 126  $\mu\text{m}$  long. Temporal setae 4–6 including 0–2 inner verticals, 3 outer verticals and 1 postorbital. Clypeus with 5–7 setae. Tentorium, stipes, and cibarial pump as in Figure 3. Tentorium 73–84  $\mu\text{m}$  long, 11–18  $\mu\text{m}$  wide at sieve pore. Stipes 63–79  $\mu\text{m}$  long, 20  $\mu\text{m}$  wide. Palp segment lengths / widths (in  $\mu\text{m}$ ): 11–18 / 10–14, 20–27 / 14–17, 43–46 / 17, 52 / 14, fifth segment lost. Third palpomere with 4–5 sensilla clavata subapically, longest 9–10  $\mu\text{m}$  long.

**Thorax** (Fig. 4). Anteprenotum with 3–4 setae. Dorsocentrals 13–15; acrostichals 13–15, starting close to anteprenotum; prealars divided into 3 posterior and 2–3 anterior setae; supraalar 1. Scutellum with 4 setae.

**Wing** (Fig. 5). VR 1.48–1.68. Costal extension 11–14  $\mu\text{m}$  long. Brachiolum with 1 seta, R with 2–3 setae, other veins bare. Squama with 0–2 setae.

**Legs.** Spur of fore tibia 29–48  $\mu\text{m}$  long, spurs of mid tibia 11–20  $\mu\text{m}$  and 9–10  $\mu\text{m}$  long, spurs of hind tibia 27–34  $\mu\text{m}$  and 12–14  $\mu\text{m}$  long. Width at apex of fore tibia 18–23  $\mu\text{m}$ , of mid tibia 18–23  $\mu\text{m}$ , of hind tibia 27–31  $\mu\text{m}$ . Comb with 15–16 setae, longest 25–29  $\mu\text{m}$  long, shortest 16–18  $\mu\text{m}$  long. Lengths and proportions of legs as in Table 2.

**TABLE 2.** Lengths (in  $\mu\text{m}$ ) and proportions of legs of *Saetherocladus fusticulus* sp. n., male ( $n = 1-2$ ).

	fe	ti	ta <sub>1</sub>	ta <sub>2</sub>	ta <sub>3</sub>	ta <sub>4</sub>
p <sub>1</sub>	331–356	331–396	137–193	78	43	29
p <sub>2</sub>	284–353	270–328	108–154	54–81	40–51	22–25
p <sub>3</sub>	302–378	328–410	207–259	90–114	83–108	40
continued.						
	ta <sub>5</sub>	LR	BV	SV	BR	
p <sub>1</sub>	25	0.41–0.49	4.16	3.91–4.31	2.2	
p <sub>2</sub>	22–25	0.40–0.47	4.55–4.84	4.39–5.13	2.4–2.6	
p <sub>3</sub>	32	0.63	3.57	3.04	2.8–3.0	

**Hypopygium** (Figs 6–8). Anal point 25  $\mu\text{m}$  long, 6–7  $\mu\text{m}$  wide at base, 2–3  $\mu\text{m}$  wide at apex, with 4–6 setae basally. Laterosternite IX with 3 setae. Phallapodeme 48–59  $\mu\text{m}$  long; transverse sternapodeme 43–57  $\mu\text{m}$  long. Virga 6–9  $\mu\text{m}$  long. Gonocoxite 88–107  $\mu\text{m}$  long. Gonostylus 47–51  $\mu\text{m}$  long, with subtriangular crista dorsalis; megaseta 4–8  $\mu\text{m}$  long. HR 1.86–2.09. HV 2.47–2.92.

**Female and immatures.** Unknown.

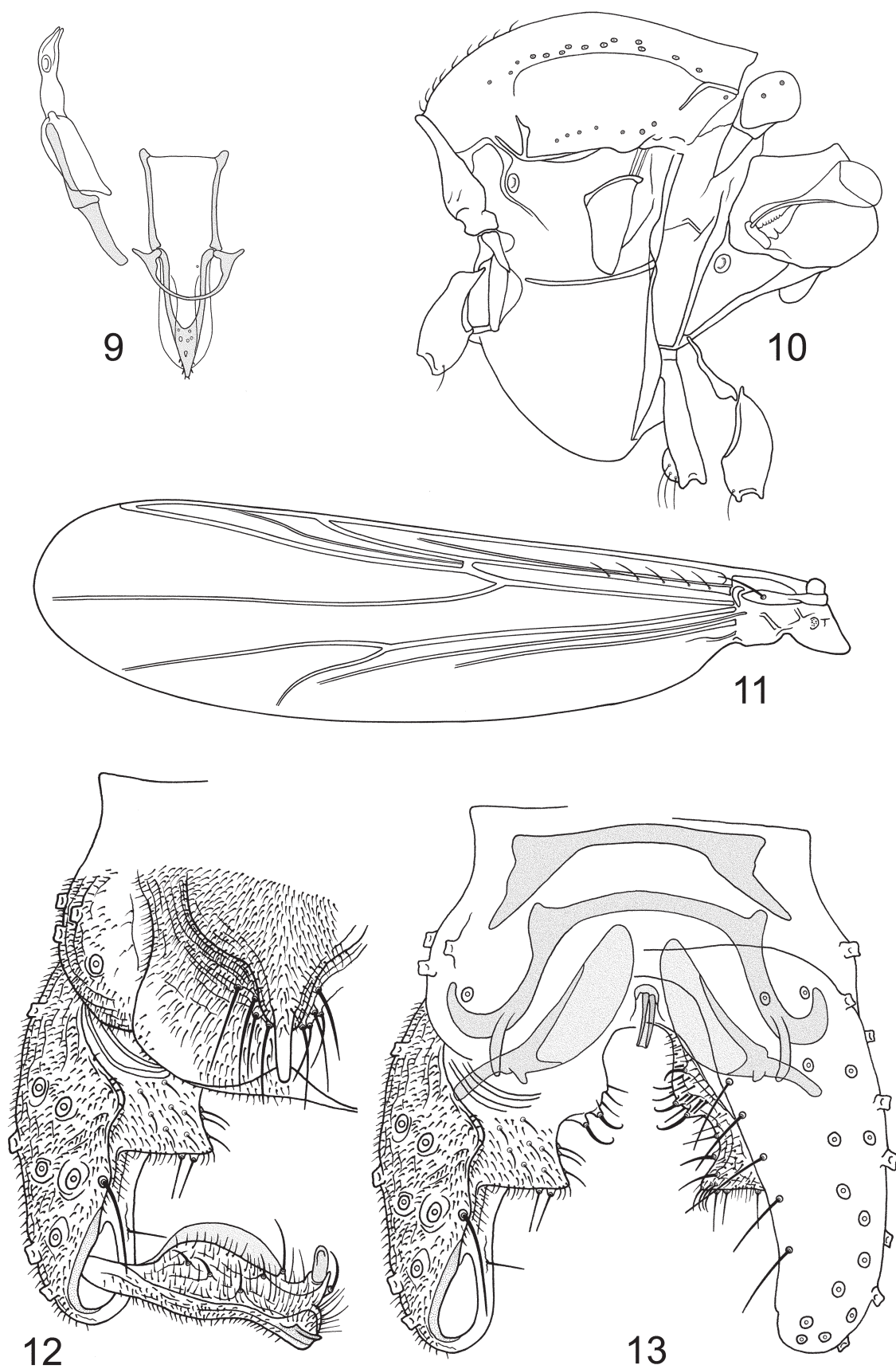
**Distribution and ecology.** The species was collected in a Malaise trap in Parque Estadual Intervales in São Paulo State, indicating a distribution in coastal areas with primary Atlantic forest.

### *Saetherocladus fusus* sp. n.

(Figs 9–13)

**Type material.** Holotype male, slide mounted in Canada balsam. **Brazil:** Santa Catarina State, Urubici, Morro da Igreja, 1.822 m a.s.l., 18.ix–5.xii.2004, Malaise trap, cloud forest, L.C. Pinho & L.E.M. Bizzo (MZUSP).





**FIGURES 9–13.** *Saetherocladus fusus* **sp. n.**, male. 9—tentorium, stipes and cibarial pump; 10—thorax; 11—wing; 12—anal point and tergite IX and dorsal aspect of left gonocoxite and gonostylus; 13—hypopygium with tergite IX and anal point removed, dorsal aspect to the left, ventral aspect to the right.

**Diagnostic characters.** The species can be separated from the other species in the genus by the following combination of characters: AR 0.70; virga 16 µm long; inferior and superior volsella well separated; inferior volsella sharply triangular, with dorsal microtrichia; gonostylus with strong outer projection and anal point tapering.

**Etymology.** From Latin *fuscus*, spindle, referring to the shape of the gonostylus.

**Male** (n = 1). Total length 1.67 mm. Wing length 1.15 mm. Total length / wing length 1.45. Wing length / length of profemur 2.66.

**Coloration.** Thorax and head dark brown; legs, abdomen and antennae brown.

**Head.** AR 0.70. Ultimate flagellomere 256 µm long. Temporal setae 5 including 2 inner verticals and 3 outer verticals. Clypeus with 6 setae. Tentorium, stipes and cibarial pump as in Figure 9. Tentorium 84 µm long, 18 µm wide at sieve pore. Stipes 37 µm long. Palp segment lengths / widths (in µm): 16 / 14, 27 / 16, 70 / 20, 61 / 20, 84 / 14. Third palpomere with 4 sensilla clavata subapically, longest 16 µm long.

**Thorax** (Fig. 10). Anteprenotum with 2 setae. Dorsocentrals 14; acrostichals 16, starting close to anteprenotum; prealars divided into 3 posterior and 4 anterior setae; supraalar 1. Scutellum with 4 setae.

**Wing** (Fig. 11). VR 1.50. Costa not extended. Brachiolium with 1 seta, R with 5 setae, other veins bare. Squama bare.

**Legs.** Spur of fore tibia 50 µm long, spurs of mid tibia 20 µm and 11 µm long, spurs of hind tibia 34 µm and 11 µm long. Width at apex of fore tibia 26 µm, of mid tibia 27 µm, of hind tibia 34 µm. Comb with 14 setae, longest 27 µm long, shortest 16 µm long. Lengths and proportions of legs as in Table 3.

**TABLE 3.** Lengths (in µm) and proportions of legs of *Saetherocladius fuscus* sp. n., male (n = 1).

	fe	ti	ta <sub>1</sub>	ta <sub>2</sub>	ta <sub>3</sub>	ta <sub>4</sub>	ta <sub>5</sub>	LR	BV	SV	BR
p <sub>1</sub>	137	64	34	–	–	–	–	0.47	–	4.01	2.7
p <sub>2</sub>	122	117	52	28	16	8	10	0.44	4.69	4.60	3.0
p <sub>3</sub>	132	141	89	41	38	14	13	0.63	3.41	3.07	3.1

**Hypopygium** (Figs 12–13). Anal point 15 µm long, 7 µm wide at base, 4 µm wide at apex, with 9 setae basally. Laterosternite IX with 4 setae. Phallapodeme 54 µm long; transverse sternapodeme 66 µm long. Virga 16 µm long. Gonocoxite 116 µm long. Gonostylus 73 µm long, with large, rounded crista dorsalis and strong outer projection; megaseta 9 µm long. HR 1.59. HV 2.28.

**Female and immatures.** Unknown.

**Distribution and ecology.** This species was collected in a Malaise trap in a pristine cloud forest at 1.822 m a.s.l. in Santa Catarina State.

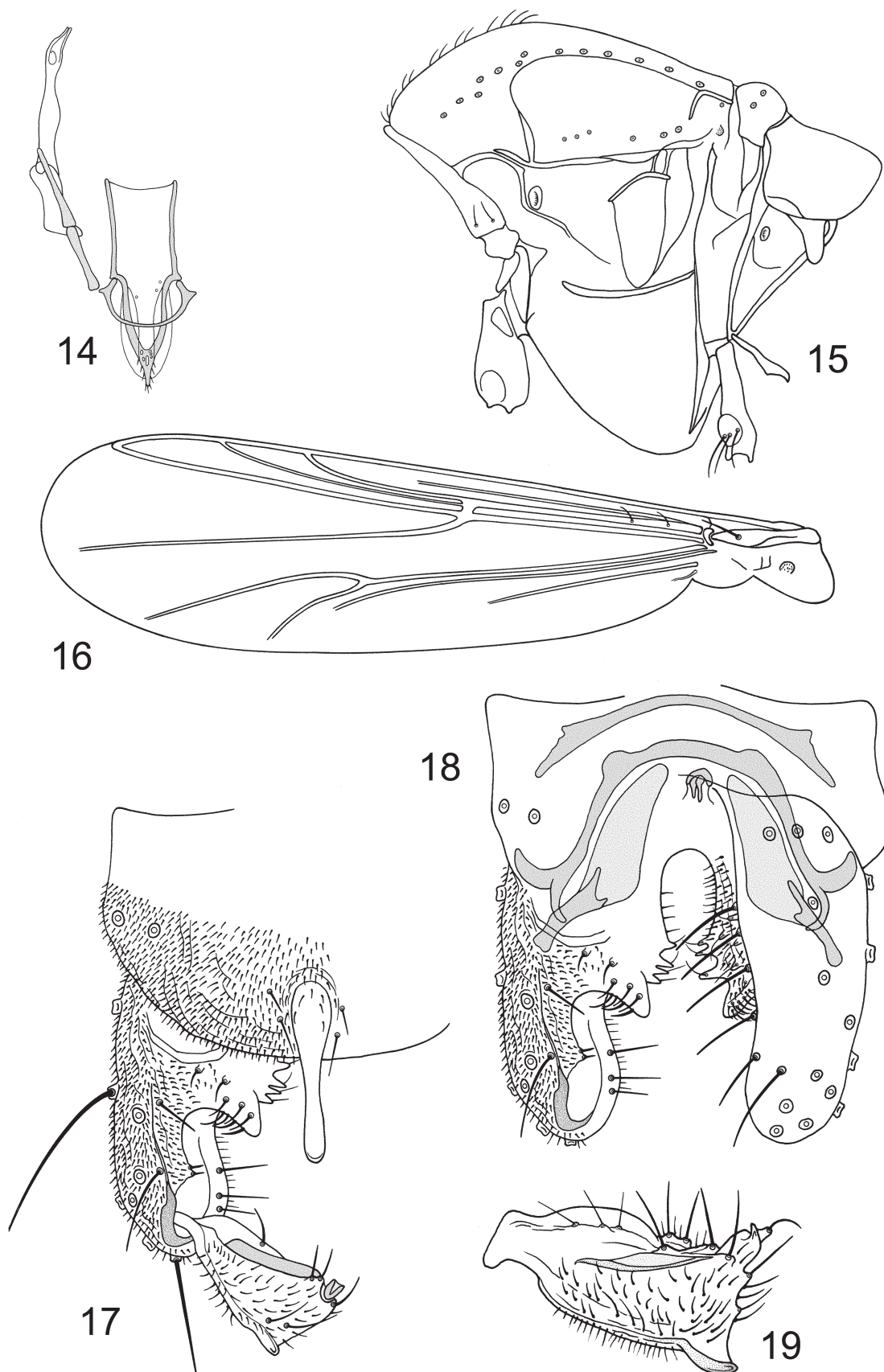
### *Saetherocladius triangulatus* sp. n.

(Figs 14–19)

**Type material.** Holotype male, slide mounted in Canada balsam. **Brazil:** São Paulo State, Parque Estadual Intervales, Ribeirão Grande, Barra Grande, 10–13.xii.2000, Malaise trap (Trilha 4), M.T. Tavares *et al.* (MZUSP). Paratypes 1 male, São Paulo State, Estação Biológica Boracéia, Salesópolis, Trilha dos Pilões, 23°39'04.8"S, 5°53'41.8"W, 30.iii.2001, Malaise trap (Mata 3), S.T.P. Amarante *et al.*; 3 males, as previous except 23°39'05.3"S, 5°53'51.7"W, 2–5.iv.2001, Malaise trap (Bosque 6) (MZUSP, ZMBN).

**Diagnostic characters.** The species can be separated from the other species in the genus by the following combination of characters: AR 0.45–0.50; virga 8–11 µm long; inferior and superior volsella not well separated; inferior volsella bluntly triangular, without dorsal microtrichia; gonostylus with distinct outer projection and anal point spatulate.

**Etymology.** From Latin *triangulus*, having three angles, referring to the shape of the gonostylus.



**FIGURES 14–19.** *Saetherocladus triangulatus* **sp. n.**, male. 14—tentorium, stipes and cibarial pump; 15—thorax; 16—wing; 17—anal point and tergite IX and dorsal aspect of left gonocoxite and gonostylus; 18—hypopygium with tergite IX and anal point removed, dorsal aspect to the left, ventral aspect to the right; 19—gonostylus with crista dorsalis projecting upwards.



**Male** (n = 4–5, except when otherwise stated). Total length 1.10–1.37, 1.23 mm. Wing length 682–857, 751  $\mu$ m. Total length / wing length 1.54–1.69, 1.62. Wing length / length of profemur 2.47–2.66, 2.53.

**Coloration.** Thorax and head brown; legs, abdomen and antennae light brown.

**Head.** AR 0.45–0.50, 0.48. Ultimate flagellomere 122–176, 139  $\mu$ m long. Temporal setae 6–8, 7 including 2–4, 3 inner verticals; 3–4, 3 outer verticals and 0–1, 1 postorbital. Clypeus with 5–6, 6 setae. Tentorium, stipes and cibarial pump as in Figure 14. Tentorium 77–93, 88  $\mu$ m long; 12–16, 14  $\mu$ m wide at sieve pore. Stipes 61–75, 68  $\mu$ m long; 20–25 (2)  $\mu$ m wide. Palp segment lengths / widths (in  $\mu$ m): 11–16, 14 / 10–12, 11; 23–27, 25 / 11–14, 13; 50–59, 55 / 17–20, 19; 41–54, 47 / 11–14, 12; 81–84 (3) / 9–11 (3). Third palpomere with 3–6, 5 sensilla clavata subapically; longest 8–11, 9  $\mu$ m long.

**Thorax** (Fig. 15). Antepronotum with 2–4, 3 setae. Dorsocentrals 11–14, 12; acrostichals 9–13, 12 starting close to antepronotum; prealars divided into 3–4, 3 posterior and 2–4, 3 anterior setae; supraalar 1. Scutellum with 4 setae.

**Wing** (Fig. 16). VR 1.37–1.45, 1.40. Costal extension 0–14, 7  $\mu$ m long. Brachiolium with 1 seta; R with 1–3, 2 setae; other veins bare. Squama with 0–1, 0 seta.

**Legs.** Spur of fore tibia 31–36, 34  $\mu$ m long; spurs of mid tibia 12–15, 13  $\mu$ m and 9–11, 10  $\mu$ m long; spurs of hind tibia 26–34, 29  $\mu$ m and 10–14, 12  $\mu$ m long. Width at apex of fore tibia 20–23, 22  $\mu$ m; of mid tibia 18–20, 19  $\mu$ m; of hind tibia 26–30, 28  $\mu$ m. Comb with 14–16, 15 setae; longest 23–27, 25  $\mu$ m long; shortest 13–16, 15  $\mu$ m long. Lengths and proportions of legs as in Table 4.

**TABLE 4.** Lengths (in  $\mu$ m) and proportions of legs of *Saetherocladius triangulatus* **sp. n.**, male (n = 4–5, except when otherwise stated).

	fe	ti	ta <sub>1</sub>	ta <sub>2</sub>	ta <sub>3</sub>	ta <sub>4</sub>
p <sub>1</sub>	263–342, 300	313–400, 348	140–180, 149	72–101, 85	43–68, 52	25–36, 31
p <sub>2</sub>	270–306, 286	266–310, 282	108–130, 114	43–67 (3)	36–43 (3)	22–27 (3)
p <sub>3</sub>	292–334, 306	317–367, 332	187–223, 202	85–97, 89	78–94, 85	29–36, 32
continued.						
	ta <sub>5</sub>	LR	BV	SV	BR	
p <sub>1</sub>	22–34, 26	0.39–0.45, 0.43	3.86–4.35, 4.13	4.10–4.72, 4.35	2.0–2.7, 2.3	
p <sub>2</sub>	18–23 (3)	0.40–0.42, 0.41	4.65–4.90 (3)	4.75–5.16, 4.98	2.0–3.1, 2.4	
p <sub>3</sub>	25–34, 29	0.59–0.63, 0.61	3.54–3.65, 3.61	3.07–3.25, 3.15	2.6–3.4, 2.9	

**Hypopygium** (Figs 17–19). Anal point 16–36, 25  $\mu$ m long; 7–10, 8  $\mu$ m wide at base; 2–3, 2  $\mu$ m wide at apex; with 4–6, 5 setae basally. Laterosternite IX with 2–5, 4 setae. Phallapodeme 42–59, 50  $\mu$ m long; transverse sternapodeme 41–52, 48  $\mu$ m long. Virga 8–11, 10  $\mu$ m long. Gonocoxite 91–105, 95  $\mu$ m long. Gonostylus 50–52, 51  $\mu$ m long, with large, subrectangular crista dorsalis and distinct outer projection; megaseta 4–8, 6  $\mu$ m long. HR 1.76–2.00, 1.88. HV 2.19–2.63, 2.43.

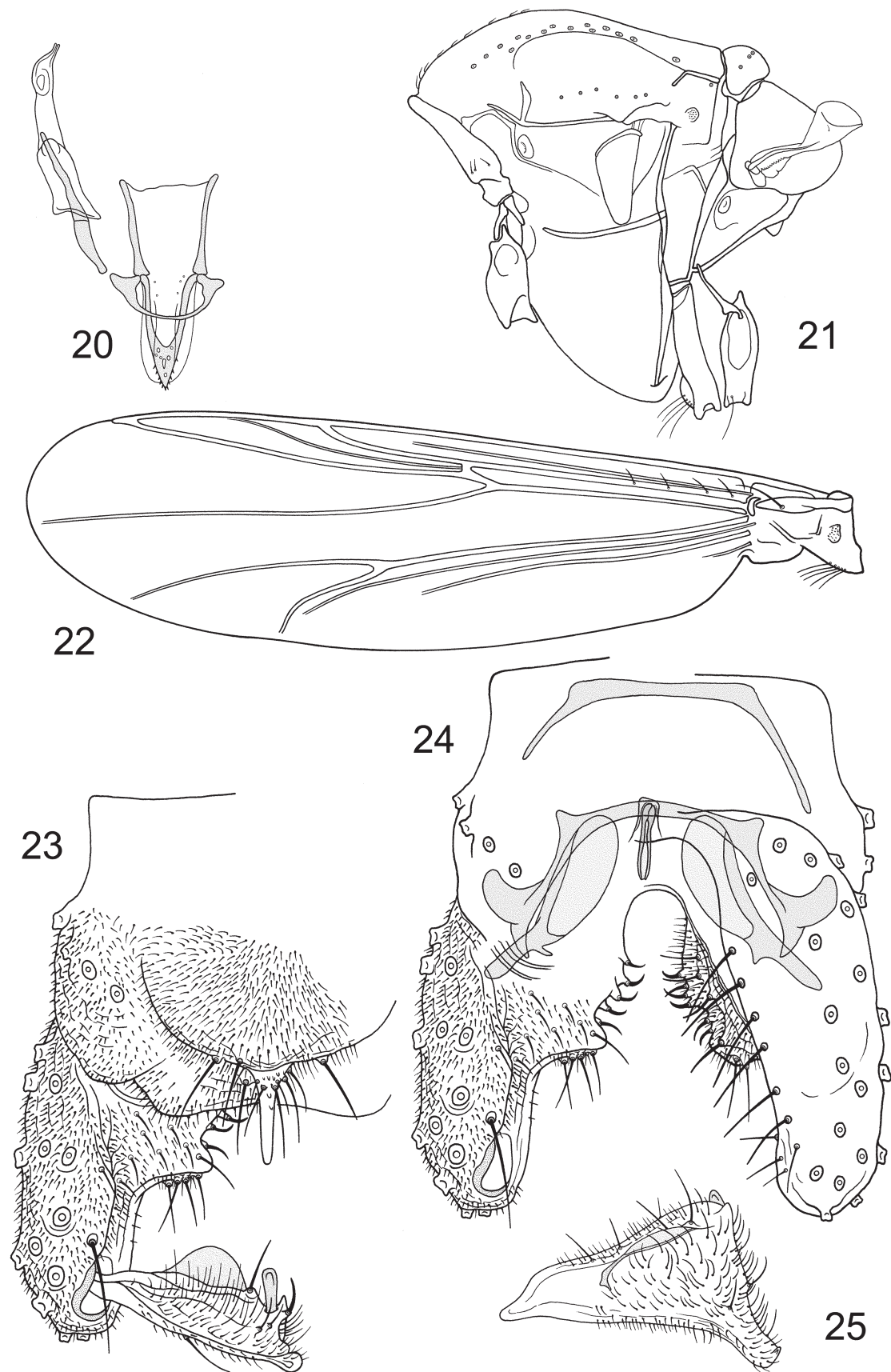
**Female and immatures.** Unknown.

**Distribution and ecology.** The species was collected in Malaise traps in Parque Estadual Intervales and in the Reserva Biológica Boracéia, indicating a distribution in the coastal areas of São Paulo State. Both nature reserves have mainly primary Atlantic forest.

#### *Saetherocladius urubiciensis* **sp. n.**

(Figs 20–25)

**Type material.** Holotype male, slide mounted in Canada balsam. **Brazil:** Santa Catarina State, Urubici, Morro da Igreja, 1.822 m a.s.l., 18.ix.–5xii.2004, Malaise trap, cloud forest, L.C. Pinho & L.E.M. Bizzo (MZUSP). Paratypes: 3 males, as holotype (MZUSP, ZMBN).



**FIGURES 20–25.** *Saetherocladus urubiciensis* **sp. n.**, male. 20—tentorium, stipes and cibarial pump; 21—thorax; 22—wing; 23—anal point and tergite IX and dorsal aspect of left gonocoxite and gonostylus; 24—hypopygium with tergite IX and anal point removed, dorsal aspect to the left, ventral aspect to the right; 25—gonostylus with crista dorsalis projecting upwards.

**Diagnostic characters.** The species can be separated from the other species in the genus by the following combination of characters: AR 0.73–0.84; virga 24–26  $\mu\text{m}$  long; inferior volsella bluntly triangular, with dorsal microtrichia; gonostylus with strong, setose outer projection and anal point tapering.

**Etymology.** The name refers to the type locality.

**Male** ( $n = 3\text{--}4$ , except when otherwise stated). Total length 1.62–2.04, 1.91 mm. Wing length 1.09–1.21 mm. Total length / wing length 1.48–1.73. Wing length / length of profemur 2.51–2.64.

**Coloration.** Thorax and head brown; legs, abdomen and antennae light brown.

**Head.** AR 0.73–0.84, 0.80. Ultimate flagellomere 257–302, 287  $\mu\text{m}$  long. Temporal setae 7–8, 7 including 3–4, 4 inner verticals; 3 outer verticals and 0–1, 1 postorbital. Clypeus with 5–6, 5 setae. Tentorium, stipes and cibarial pump as in Figure 20. Tentorium 104–118, 112  $\mu\text{m}$  long; 17–24, 20  $\mu\text{m}$  wide at sieve pore. Stipes 95–107, 98  $\mu\text{m}$  long; 32 (1)  $\mu\text{m}$  wide. Palp segment lengths / widths (in  $\mu\text{m}$ ): 13–16, 15 / 13–15, 14; 29–36, 34 / 13–16, 15; 73–82, 77 / 20–24, 22; 63–67, 65 / 17–19, 18; 109–127, 118 / 14. Third palpomere with 4–6, 5 sensilla clavata subapically; longest 10–14, 13  $\mu\text{m}$  long.

**Thorax** (Fig. 21). Anteprenotum with 2–4, 3 setae. Dorsocentrals 13–17, 14; acrostichals 9–18, 16 starting close to anteprenotum; prealars divided into 3 posterior and 3–4, 3 anterior setae; supraalar 1. Scutellum with 4–5, 4 setae.

**Wing** (Fig. 22). VR 1.46–1.54. Costal extension 0–14, 7  $\mu\text{m}$  long. Brachiolium with 1 seta; R with 3–8 setae;  $R_1$  with 0–1, 1 seta; other veins bare. Squama with 1–5 setae.

**Legs.** Spur of fore tibia 50  $\mu\text{m}$  long; spurs of mid tibia 19–23 (2)  $\mu\text{m}$  and 10–12 (2)  $\mu\text{m}$  long; spurs of hind tibia 41–50, 43  $\mu\text{m}$  and 9–14, 11  $\mu\text{m}$  long. Width at apex of fore tibia 27–28  $\mu\text{m}$ ; of mid tibia 27–29 (2)  $\mu\text{m}$ ; of hind tibia 36–41, 39  $\mu\text{m}$ . Comb with 15–16, 15 setae; longest 32–36, 34  $\mu\text{m}$  long; shortest 15–20, 18  $\mu\text{m}$  long. Lengths and proportions of legs as in Table 5.

**TABLE 5.** Lengths (in  $\mu\text{m}$ ) and proportions of legs of *Saetherocladius urubiciensis* **sp. n.**, male ( $n = 2\text{--}4$ ).

	fe	ti	ta <sub>1</sub>	ta <sub>2</sub>	ta <sub>3</sub>	ta <sub>4</sub>
p <sub>1</sub>	410–479	482–562	216–245	120–140	67–79	30–42
p <sub>2</sub>	432–468	425–439	169–191	97–105	58–63	30–32
p <sub>3</sub>	454–511, 484	497–553, 533	302–353, 329	137–156, 148	119–139, 129	43–52, 48
continued.						
	ta <sub>5</sub>	LR	BV	SV	BR	
p <sub>1</sub>	40–43	0.44–0.45	4.13–4.32	4.13–4.18	2.5	
p <sub>2</sub>	36–40	0.40–0.43	4.55–4.63	4.75–5.06	2.7–2.8	
p <sub>3</sub>	43–47, 45	0.60–0.64, 0.62	3.60–3.67, 3.63	2.96–3.16, 3.10	2.6–3.6, 3.1	

**Hypopygium** (Figs 23–25). Anal point 20–27, 23  $\mu\text{m}$  long; 5–7, 6  $\mu\text{m}$  wide at base; 2  $\mu\text{m}$  wide at apex; with 4–10, 8 setae basally. Laterosternite IX with 4–5, 4 setae. Phallapodeme 63–65, 64  $\mu\text{m}$  long; transverse sternapodeme 61–73, 65  $\mu\text{m}$  long. Virga 24–26, 25  $\mu\text{m}$  long. Gonocoxite 120–137, 129  $\mu\text{m}$  long. Gonostylus 65–68, 67  $\mu\text{m}$  long, with large, rounded crista dorsalis and strong, setose outer projection; megaseta 8–11, 10  $\mu\text{m}$  long. HR 1.77–2.07, 1.94. HV 2.46–3.14, 2.88.

**Female and immatures.** Unknown.

**Distribution and ecology.** The species was collected in a Malaise trap in a pristine cloud forest at 1.822 m a.s.l. in Santa Catarina State.

### Key to the males of *Saetherocladius* Andersen *et* Mendes

1. AR < 0.51; virga < 12  $\mu\text{m}$  long..... 2
- AR > 0.69; virga > 15  $\mu\text{m}$  long..... 4

2. Gonostylus without distinct outer projection; anal point parallel-sided or tapering..... 3
- Gonostylus with distinct outer projection; anal point weakly spatulate (Fig. 17) ..... *S. triangulatus* **sp. n.**
3. Gonostylus widest in basal half; inferior and superior volsella well separated, inferior volsella without dorsal microtrichia (Figs 1–2). ..... *S. hirtus* Andersen *et* Mendes
- Gonostylus widest medially; inferior and superior volsella less well separated, inferior volsella with dorsal microtrichia (Figs 6–8). ..... *S. fusticulus* **sp. n.**
4. Inferior volsella sharply triangular; outer projection of gonostylus with bare, sclerotized apex; virga 16 µm long (Figs 12–13) ..... *S. fusus* **sp. n.**
- Inferior volsella bluntly triangular; outer projection of gonostylus with microtrichia towards apex; virga 24–26 µm long (Figs 23–25)..... *S. urubiciensis* **sp. n.**

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